and chemical composition, into a *granitic*, a *syenitic*, and a *dioritic* series.

Looking at the rocks, however, from the point of view of habit and structure, three types, independent of mineralogical composition, may be established, namely: a "*granitic*," only known to occur among the more acid representatives; a "*granito-porphyritic*," which is represented in each of the above series; and a "*lamprophyric*," which appears to be unrepresented in the more acid subdivisions. The following classification is accordingly proposed for the "dyke-rocks":—

(*a*) Granitic dyke-rocks (aplite, tourmaline-granite, &c.).

(*b*) Granito-porphyritic dyke-rocks (granite-porphyry, syenite-porphyry, elæolite-porphyry, diorite-porphyrite).

(*c*) Lamprophyric dyke-rocks.

This last family may perhaps be best designated as a refuge for certain classes of rocks, such as the kersantites and kersantons, the minettes, and the lamprophyres, which have been long wandering about in the various systems of classification without finding any fixed abode. It is further subdivided into the syenitic lamprophyres (minettes and vogesites) and the dioritic lamprophyres (kersantite and camptonite).

Passing on to the group of the true Volcanic rocks, we note an important distinction between them and those of the Plutonic group, contained in a general law laid down by the author in this chapter. A volcanic (effusive) rock is always more acid and specifically lighter than its plutonic equivalent. To explain this the author suggests that an eruptive magma, during its slow ascent along cracks in the earth's crust, differentiates according to specific gravity, the heavier part, which ultimately gives rise to the plutonic rocks that consolidate within the earth's crust, being more basic, poorer in alkalies, and richer in alkaline earths and iron, than the specifically lighter part which reaches the earth's surface.

The author then proceeds to discuss the recurrence of phase in the crystallisation of the effusive rocks, and defines porphyritic structure as that structure which is produced by the recurrence of the same or similar minerals at two distinct periods of crystallisation. It is this structure which is the most essential characteristic of the effusive rocks. It may, however, be developed in very different ways. When the ground-mass is holocrystalline, the structure is "holocrystalline-porphyritic"; it is "vitro-porphyritic" when the ground-mass is glassy, and "hypocrystalline-porphyritic" when the ground-mass consists partly of vitreous, partly of crystalline elements.

Of the Volcanic group only the palæovolcanic series is discussed in the present volume. It is subdivided as follows:—

(*a*) Family of the quartz porphyries (palæovolcanic equivalents of the granites).

(*b*) Family of the quartzless porphyries (equivalents of the syenites).

(*c*) Family of the porphyrites (equivalents of the diorites).

(*d*) Family of the augite-porphyrites and melaphyres equivalents of the gabbros and diabases).

(*e*) Family of the picrite-porphyrites (equivalents of the peridotites).

The neovolcanic rocks (rhyolites, trachytes, andesites, basalts, phonolites, tephrites, &c.) are reserved for the Second Part, which is promised for Easter of this year, and will contain the plates to the whole volume. Thus completed, the work will form a most valuable addition to petrographical literature. One of its important features is the full collation of literature under each head. Students of petrographical science will thank Prof. Rosenbusch for the inestimable boon he has conferred upon them in indexing almost all the papers dealing with petrographical subjects which had appeared up to the date of publication of his book.

FREDERICK H. HATCH

LOCH CRERAN

Loch Creran: Notes from the Western Highlands. By W. Anderson Smith. (Paisley and London: Alexander Gardner, 1887.)

THE amateur naturalist who has leisure, a genuine interest in his subject, and abundant opportunities of exercising his observation, ought to be an exceptionally happy person; but he is not always well-advised in rushing into print with the result of his fugitive studies. That, however, is one of the foibles of the hour. The public are supposed to welcome somewhat bald catalogues of the common objects of the way-side, the heath, and the sea-shore; the newspaper reporter is glad to be temporarily withdrawn from the Divorce Court and sent to describe the chestnut-trees in Bushey Park; and young ladies, who have got the length of distinguishing between *Ranunculus Ficaria* and *R. acris* narrate in the evening papers the story of their exploration of the hedgerows. The result is harmless enough. It is not science; it is not literature; but it serves to teach a few people here and there to keep their eyes open; and that is something. And perhaps a world groaning under a load of books need not mind an additional volume or two—which it is not compelled to read.

Mr. W. Anderson Smith does not inform us whether these "Notes from the Western Highlands" have been, like some other of his writings, reprinted from a provincial journal; but if they are so, he has done himself injustice in not stating the fact; for carelessness that is comparatively venial in the columns of a newspaper becomes vexatious in a book. And truth compels us to say that Mr. Smith's style is slovenly in the extreme. Mis-spellings abound; the few scraps of French or Latin quoted are almost invariably mangled; there is an occasional lapse of grammar; and now and again the heedless composition provokes a smile, as when he says, "Into the luxurious beds we sink up to the knees, many of them at present with dainty seed-vessels ripe and full." And yet there is a chatty simplicity here and there in the book that is not without attraction. The ways and humours of certain domestic pets are described in a kindly fashion which recommends itself; and there are incidental glimpses of winter life and winter occupations in the West Highlands that are sufficiently pleasant. As for the bulk of the volume, that is devoted to marine zoology; and marine zoology, to be made interesting, not to say intelligible, to the general reader, should be accompanied by illustrations; while, on the other hand, the trained scientific student is not likely to concern himself much with the unmethodical investigations here noted down.

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But in merely making incidental memoranda of the every-day experiences of life in his northern home, Mr. Smith has mentioned not a few interesting things; and for these one soon begins to be grateful in reading a volume that is otherwise none too lively. He tells us, for example, how a heron was suspected of stealing ducklings, was watched, and finally caught in the act of devouring one of the birds—which seems a singular occurrence. On the other hand, the appearance of a bat in January, when the West Highlands happen to be visited by a spell of mild weather, is by no means the rare phenomenon he supposes it to be. There are some interesting remarks on the incubation of the cuckoo's egg (pp. 13 and 16) which seem to suggest a need for further inquiry. But we cannot say that we place implicit faith in Mr. Anderson Smith as an observer. His story of how, on one occasion, in passing through a wood, he startled a number of fallow-deer and roebuck may be forgiven on account of the darkness prevailing at the time: we should prefer to wait for some daylight notes before believing that the fallow-deer and the roe have agreed to lay aside their long-standing and mutual antipathy. "The pheasant is an unwieldy bird and of no great power of flight." Did the writer of that sentence ever try to "stop" a rocketer well on the wing and coming down wind; and what was the expression of his face when he wheeled round to find the "unwieldy" bird already disappearing into the next parish? Mr. Smith in this volume revives a controversy in which, as it appears, he has been engaged before, with regard to the lower animals committing suicide; and remarks that it may be assumed they know what death is from the fact that many of them can simulate it with marvellous accuracy. It is no doubt true that the young of certain animals, when confronted with danger, will suddenly become motionless, and remain so until the danger is removed—just as it is a common trick among street arabs for a small boy, when pursued by a bigger boy, to throw himself down in the roadway and lie perfectly still, prepared for the worst. But to assume that the young curlew or the young rat that suddenly stiffens itself and shuts its eyes is aware that it is simulating death, or has any understanding of such a state, is a far jump. Mr. Smith cites the case of a terrier belonging to a friend of his which, having the distemper, deliberately went off and drowned itself. Clearly the verdict here must be temporary insanity; the dog did not know what it was doing. The chief reason for concluding that the lower animals are not aware that they possess the liberty of suicide is that so few of them (or none of them) take advantage of it; if they did know, the overworked cart-horse, the mangy cur, the long-enduring donkey, would forthwith knock their heads against the nearest wall—unless, indeed, it is to be supposed that these animals are so highly intelligent as to have heard of the significant French proverb: "Quand on est mort, c'est pour longtemps." But this question of suicide among animals has always been a stumbling-block. Prof. Edward Forbes accused a whole tribe of star-fish of having a suicidal instinct on no better grounds than that they, on being brought into the air, or put in fresh water, went to bits. He even describes one of them as rejoicing in its power of eluding scientific scrutiny:—"I saw its limbs escaping through every mesh of the dredge. In my despair I seized the largest piece, and brought up the extremity of an arm with its terminal eye, the spinous eyelid of which opened and closed with something exceedingly like a wink of derision." After this we shall not be surprised to hear of a body of scientific experts meeting to consider the question of suicide among animals—with Mark Twain as President of the Committee.

"Loch Creran" is not a vivacious book; but it is unpretentious; and the author, in a rambling and hap-hazard fashion, contrives to give us some idea of his surroundings and pursuits. Indeed, the dweller in towns, who has the patience to follow this somewhat prolix writer, will probably part company with him with no slight feeling of envy.

OUR BOOK SHELF

The Encyclopædic Dictionary. Vol. VI. Part 1. (London: Cassell and Co., 1887.)

THE work to which this volume belongs is much more than a mere dictionary in the ordinary sense. It includes the description of things as well as of words, special attention being given to objects and processes indicated by scientific and technical terms. The information offered is never, of course, exhaustive, but it is sufficient for the purposes the compilers have had in view, and generally it has the merit of being clear, concise, and, as far as it goes, accurate. As a dictionary the work deserves high praise. It contains all the English as well as all the Scotch words now in use, with their significations re-investigated, re-classified, and re-illustrated by examples. A large number of obsolete words have also been introduced. The etymology is inclosed within brackets immediately following each word; and the pronunciation is indicated by diacritical marks, a key to which is given at the foot of the several pages. The present volume includes all words from "quoi" to "shipp," and, so far as we have been able to test it, we have found it lucidly arranged and thoroughly trustworthy.

Descriptive Catalogue of the General Collection of Minerals in the Australian Museum. By A. Felix Ratte. Printed by order of the Trustees. (Sydney: Thomas Richards.)

THIS Catalogue has been carefully compiled, and no doubt it has already been of considerable service to persons making use of the Australian Museum. For the classification of silicates the compiler has taken as a guide Dana's "System of Mineralogy"; for the classification of metallic minerals, Roscoe's "Chemistry." But these authors' systems have not been entirely followed, especially where rare mineral products are concerned. The notes, although generally brief, are adequate, and there is a valuable appendix on gems and ornamental specimens.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

West Indian Meteorological Confederation

IN the leading article in NATURE, vol. xxxv. p. 241, remarks were made respecting the advantages which would accrue to the West Indian Islands, and to the Meteorological Council of the

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